



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

MEMORANDUM

DATE: MAY 19 2004

SUBJECT: Region 5 Response to National Remedy Review Board Recommendations –
Kerr-McGee Kress Creek Superfund Site

FROM: *for* Richard C. Karl, Acting Director
Superfund Division

A handwritten signature in black ink, appearing to read "Richard C. Karl", written over the typed name.

TO: Jo Ann Griffith, Chair
National Remedy Review Board

Thank you for the National Remedy Review Board's comments on the proposed remedy for the Kerr-McGee Kress Creek Superfund Site. The Region appreciates the Board's efforts in reviewing the site and offers the following responses to the Board's comments.

COMMENT 1: The package does not indicate the level of risk associated with the 7.2 pCi/g combined radium cleanup level. For the sake of comparability with other sites, the Board encourages the Region to identify the risk level associated with the 7.2 pCi/g remedial goal for the appropriate exposure scenario (e.g., recreational exposure) and include this information in the decision documents.

RESPONSE: The 7.2 pCi/g combined radium cleanup level is an ARAR-based cleanup level, not a site-specific risk-based cleanup level. It is a protective cleanup level and its use at the Kress Creek site is consistent with EPA guidance for the cleanup of radioactively-contaminated sites. The criterion upon which the cleanup standard was based is the concentration criterion for surface soil contained in the regulations at 40 CFR 192. The surface soil criterion (5 pCi/g above background) is a health-based standard and EPA guidance (OSWER Directive No.9200.4-25) provides direction on its use as an ARAR for both surface and subsurface contamination. It has not been the practice of the Region to identify in decision documents the residual risk associated with applying ARAR-based cleanup standards, whether for radiological contaminants or other chemical contaminants (such as MCLs). In addition, there does not appear to be written national program guidance or policy that requires this type of analysis for ARAR-based cleanups. The Region intends to clearly state in the decision document that the cleanup standard for the Kress Creek site is based on ARARs and is protective. As a result, the Region does not believe that identifying the residual risk level associated with the ARAR is necessary.

COMMENT 2: The remedy being proposed by the Region involves the excavation and off-site disposal of radiologically-contaminated materials to predetermined depths with no post-excavation sampling to confirm the achievement of cleanup goals. The rationale for not including post-excavation sampling is based on the large amount of available data that the Region believes adequately characterizes the contamination. The Board notes that this approach is not typical. At other sites involving subsurface cleanups, even those with extensive data sets, EPA has often found contamination beyond expected areas. Without post-excavation sampling, it may be difficult to verify that cleanup goals have been met. Consequently, the Board recommends that the Region reconsider the need for some degree of post-excavation confirmation sampling.

RESPONSE: The Region believes that the extensive amount of surface gamma survey and delineation drilling/downhole gamma logging data collected at the site has adequately characterized the lateral and vertical extent of the contamination. The surface gamma surveys covered essentially 100% of the sediments, banks and floodplain areas at the site, and more than 292,000 individual data points were collected by the GPS data logger. Based on the results of those readings, delineation drilling and downhole gamma logging was conducted to delineate the boundaries of the contaminated areas. At each location, downhole gamma readings were recorded at each 6-inch interval to a minimum depth of three feet, with a preferred depth of five feet. If necessary, the depth was extended even further until at least two readings (representing one foot vertically) below the cleanup standard were recorded. The delineation drilling also “stepped out” laterally from contaminated locations, with drilling conducted every 5 meters laterally until the initial clean edge of the deposit was located. Additional locations were then drilled by “stepping back in” half the distance toward the contamination (2.5 meters) to further define the edge of the contaminated deposit. In all, delineation drilling and downhole gamma logging was conducted at 13,745 individual locations at the Kress Creek site, resulting in the collection of 102,853 individual downhole gamma readings. The Region believes that the volume and the spatial density of data at this site has adequately characterized the contamination.

Additionally, the Region has ten years of experience with this PRP’s characterization efforts at two other related sites that have undergone cleanup actions, including radiological verification in the excavated areas at more than 670 residential and other properties. Although there were some instances where contamination extended beyond expected areas, the PRP’s characterization efforts have been refined and improved over the years to the point where the data generally very accurately predict the limits of the contaminated areas. The Region’s past experience with this PRP weighed heavily in the Region’s decision to not require post-excavation radiological verification. The Region also notes that radiological verification will be conducted on the excavated overburden materials, which will test the characterization data’s accuracy in predicting the location of the boundary between overburden and contaminated materials. In addition, the Region notes that the local community entities (who have their own technical consultants) always

have strongly opposed leaving any contaminated material behind, and those local communities strongly support the proposed cleanup remedy as presented to the Board, with no post-excavation confirmation sampling. In summary, the Region believes that, for the circumstances at this site, and based on the extensive site data and past experience with the PRP, radiological verification in the excavated areas is not needed to ensure a protective cleanup.

COMMENT 3: The package as presented to the Board identified several local ordinances as ARARs (see Tables 18 and 19). Consistent with CERCLA, the NCP defines ARARs as Federal and State environmental or facility siting laws. Local ordinances may be identified as criteria “to be considered” (TBC). The Board recommends the decision documents reflect this distinction.

RESPONSE: During the Board meeting the Region explained that Tables 18 and 19 in the briefing package were from the draft feasibility study report and that the tables would be corrected in the final version of the report. The tables have been corrected and the decision documents will reflect the correct information.

COMMENT 4: The Board acknowledges that for this site, the monitored natural recovery remedy is not preferred given the time frames associated with the radioactive decay of the contaminants present and other site characteristics. However, the estimated present worth cost of \$250K for MNR of Kress Creek likely underestimates the true cost of long-term monitoring. The Board recommends that the Region develop a more realistic cost estimate for MNR to include comprehensive monitoring and costs of administering institutional controls.

RESPONSE: The Region has reevaluated the costs for the MNR alternative. The total present worth cost of the MNR alternative for the Kress Creek site is now estimated to be \$350,000, including an upfront cost of \$100,000 for the legal fees associated with obtaining access and deed restrictions. The Region believes that the costs for comprehensive monitoring at the site are accurate, as they are based on the PRP’s extensive experience with conducting radiation surveys at this and other sites. The costs for long-term monitoring include the costs for conducting comprehensive surface gamma surveys, specifically focusing on areas of the site potentially subject to remediation, every 5 years for a period of 30 years (estimated at \$100,000 per event). The Region notes that, unlike some sites with other contaminants (i.e., PCBs), there have been no documented effects to biota from the radioactive contaminants, so there is no need to conduct longterm monitoring of biota as part of the MNR alternative. The purpose of the monitoring is solely to track the reductions of radioactivity (through half-life decay and/or ongoing burial of contaminated areas via physical processes) in soils and sediments over time. The cost estimate assumed a 30-year monitoring period, although long-term monitoring under the MNR alternative would be needed well beyond that time period. However, for present worth cost estimates, considering the time value of money and using a 7% discount rate, expenditures beyond the 30-year period do not significantly change the present worth value.

COMMENT 5: The package as presented to the Board did not address the potential risks associated with chemical toxicity of the site contaminants, for example, total uranium and other chemical contaminants. The Board recommends that the Region include the results of these evaluations in the decision documents and compare the selected remedy options to the protectiveness criteria for ecological risk. This may be accomplished through comparison of anticipated residual chemical concentrations to the screening criteria used in the ecological risk assessment.

RESPONSE: The package presented to the Board did not present information on the potential risks associated with chemical toxicity of site contaminants because it focused only on the contaminants driving risks at the site. Such evaluations are addressed in the human health and ecological risk assessment documents, and the results of those evaluations will be included in the record of decision.

COMMENT 6: The preferred alternative includes a provision to add up to 15% quicklime to excavated sediments to aid in dewatering. This approach may yield significant temperature increases, particulate or vapor emissions, and an alkaline discharge that could solubilize uranium. The proposed open mixing using a backhoe could exacerbate these potential problems. The Board recommends that these concerns be evaluated and presented in the decision documents.

RESPONSE: The provision to add quicklime to excavated sediments as a stabilizing agent was an assumption for purposes of the cost estimate only. The decision to use quicklime as opposed to some other stabilizing agent (such as saw dust) or which mixing method to use has not yet been made. The Region considers this an important issue, but one that will be evaluated and addressed during the design phase, not in the record of decision. The language in the final version of the feasibility study report indicates that a stabilizing agent will be used only if needed and the specific agent to be used will be evaluated during the detailed design.

COMMENT 7: The cost estimate for the preferred alternative included only three years of postremediation monitoring and maintenance at a present value cost of \$700K. The Board is concerned that the time frame is too short to ensure that the in-stream restoration actions have taken hold and have stabilized. The Board recommends that the monitoring period be increased to a minimum of five years, and longer if by that time no significant storm event (e.g., bankfull discharge) has occurred post-remediation. The monitoring plan also did not include in-stream surveys to document the recovery of aquatic and benthic life. The Board recommends that such surveys be considered.

RESPONSE: Kerr-McGee has prepared a draft conceptual mitigation and restoration design plan for the site with input from EPA, the state and federal trustees and the local communities. However, the draft plan currently does not include provisions for the monitoring and maintenance of *in-stream* areas. In a letter dated January 14, 2004, the federal government (DOJ on behalf of EPA and DOI/FWS) provided the PRP with

comments on the most recent version of the draft plan and, noting this deficiency, asked that the PRP “specify what type of performance criteria and monitoring plan will be developed to determine aquatic habitat mitigation and restoration success.” The government currently is negotiating with the PRP regarding the type of monitoring and maintenance to be conducted for in-stream areas and the length of time for such monitoring and maintenance. During the negotiations the Region will consider the Board’s recommendation for a 5-year minimum time frame for monitoring of in-stream areas as well as the recommendation for in-stream surveys to document the recovery of aquatic and benthic life.

The three-year post-remediation monitoring and maintenance period discussed in the cost estimate for the preferred alternative was based on the aforementioned draft of the conceptual mitigation and restoration plan. The draft plan contains provisions for a minimum of three years of post-remediation monitoring and maintenance for upland areas, restored bank areas, and restored wetlands and mitigation wetland areas. (As mentioned above, the draft plan does not yet include provisions for in-stream areas.) If specified criteria have not been met at the end of the three-year monitoring period for those areas, then adaptive management activities will be implemented for the deficient areas and monitoring/maintenance of the deficient areas will be extended until the criteria have been achieved. The Region notes that the federal government and the state trustees already have agreed to the 3-year post-remediation monitoring and maintenance period for upland areas, restored bank areas, and restored wetlands and mitigation wetland areas, and that provision will not change.

Additionally, the Region notes that for the Kress Creek site, the two-year flow approximates bankfull discharge conditions. Based on USGS data and stream gages installed as part of site investigations, the Region has information on the frequency of occurrence of the two-year flow at the site. For Kress Creek, the two-year flow was exceeded on 10 occasions during the period from 1985 to 2000; during this same 15-year period, there was no consecutive three-year period when the two-year flow was not exceeded. For the West Branch DuPage River, the two-year flow was exceeded on 19 occasions during the period from 1968 to 2000; over the past 15 years, there was no consecutive three-year period when the two-year flow was not exceeded. Given this data, the Region fully expects that a bankfull event will occur during any consecutive three-year period. It is even more likely that such an event would occur during a five-year monitoring period.